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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,759	10/27/2003	Yoshiharu Hirakata	740756-2656	8854

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EXAMINER

LOUIE, WAI SING

ART UNIT PAPER NUMBER

2814

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/692,759

Applicant(s)

HIRAKATA ET AL.

Examiner

Wai-Sing Louie

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 and 50-69 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 and 50-69 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/03, 11/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Applicant's election without traverse of Group I, claims 1-44, 50-69, in the reply filed on 4/14/2005 is acknowledged.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-44 and 50-69 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-102 of U.S. Patent No. 6,638,781.

Although the conflicting claims are not identical, they are not patentably distinct from each other because:

With regard to claims 1 and 23, US 6,638,781 discloses a semiconductor device comprising:

- a first substrate (claim 1);
- a second substrate (claim 1); and

Art Unit: 2814

- a plurality of columnar spacers disposed between said first substrate and said second substrate and maintaining an interval between said first substrate and second substrate, each of said columnar spacers having at least an upper surface, a side surface, and an edge between said upper surface and said side surface, wherein said upper surface faces a surface of said second substrate, wherein a radius R of curvature of said edge is 2 μm or less (claim 1);
- an alignment film which covers said columnar spacers (claim 29).

With regard to the limitation of claims 2, 24, 51, 56, 61, and 66, US 6,638,781 discloses in claim 7.

With regard to the limitation of claims 3 and 25, US 6,638,781 discloses in claim 8.

With regard to the limitation of claims 4, 26, 52, 57, 62, and 67, US 6,638,781 discloses in claim 9.

With regard to the limitation of claims 5 and 27, US 6,638,781 discloses in claim 10.

With regard to the limitation of claims 6 and 28, US 6,638,781 discloses in claim 11.

With regard to the limitation of claims 7 and 29, US 6,638,781 discloses in claim 13.

With regard to the limitation of claims 8 and 30, US 6,638,781 discloses in claim 15.

With regard to the limitation of claims 9 and 31, US 6,638,781 discloses in claim 16.

With regard to the limitation of claims 10 and 32, US 6,638,781 discloses in claim 20.

With regard to the limitation of claims 11 and 33, US 6,638,781 discloses in claim 21.

With regard to the limitation of claims 12 and 34, US 6,638,781 discloses in claim 22.

With regard to the limitation of claims 13 and 35, US 6,638,781 discloses in claim 23.

With regard to the limitation of claims 14 and 36, US 6,638,781 discloses in claim 25.

With regard to the limitation of claims 15, 37, 53, 58, 63, and 68, US 6,638,781 discloses in claim 26.

With regard to the limitation of claims 16, 38, 54, 59, 64, and 69, US 6,638,781 discloses in claim 28.

With regard to the limitation of claims 17 and 39, US 6,638,781 discloses in claim 2.

With regard to the limitation of claims 18 and 40, US 6,638,781 discloses in claim 4.

With regard to the limitation of claims 19, 21-22, 41, and 43-44, US 6,638,781 discloses in claims 2, 4, and 6.

With regard to the limitation of claims 20 and 42, US 6,638,781 discloses in claims 2 and 4.

With regard to the limitation of claim 21, US 6,638,781 discloses in claim 7.

With regard to the limitation of claims 50, 55, 60, and 65, US 6,638,781 discloses a semiconductor device comprising:

- a thin film transistor over a first substrate (claim 97);
- a pixel electrode electrically connected to said thin film transistor (claim 97);
- an alignment film over the pixel electrode (claim 29);
- a columnar spacer over said alignment film, said columnar spacer having at least an upper surface, a side surface, and an edge between said upper surface and said side surface, wherein said upper surface faces a surface of said second substrate and a radius R of curvature of said edge is 2 μ m or less (claim 97); and
- a light-shielding film provided over said second substrate, wherein said columnar spacer is located below said light-shielding film (claim 97).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11, 15, 17-18, 23-33, 37, and 39-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Hasegawa et al. (US 5,499,128).

With regard to claims 1 and 23, Hasegawa et al. disclose a liquid crystal display device (col. 5, line 59 to col. 27, line 26 and fig. 4) comprising:

- a first substrate 111 (fig. 4);
- a second substrate 141 (fig. 4); and
- a plurality of columnar spacers 112 disposed between said first substrate 111 and said second substrate 141 and maintaining an interval between said first substrate and second substrate, each of said columnar spacers having at least an upper surface, a side surface, and an edge between said upper surface and said side surface, wherein said upper surface faces a surface of said second substrate 141, wherein a radius R of curvature of said edge is 2 μm or less (see calculation below)

$$\text{Radius (R)} = \frac{1}{2} (L1 - L2) = \frac{1}{2} (15 \mu\text{m} - 11 \mu\text{m})$$

= 2 μm (col. 20, lines 43-51 and fig. 4);

- an alignment film which covers said columnar spacers 142 (fig. 4).

With regard to claims 2 and 24, Hasegawa et al. disclose the columnar spacers comprises a flat surface at the upper surface (fig. 7).

With regard to claims 3 and 25, Hasegawa et al. disclose the columnar spacers is a circle (col. 20, line 49).

With regard to claims 4 and 26, Hasegawa et al. disclose the columnar spacers comprises an insulating material (col. 19, line 64).

With regard to claims 5 and 27, Hasegawa et al. disclose the columnar spacers is formed over a contact portion where a TFT and a pixel electrode are connected to each other (col. 9, lines 65-67 and fig. 2g).

With regard to claims 6 and 28, Hasegawa et al. disclose the columnar spacers are formed at a seal region 32 (fig. 3g).

With regard to claims 7 and 29, Hasegawa et al. disclose the columnar spacers are formed at a sealing region 32 and a pixel portion 22 (fig. 3g).

With regard to claims 8 and 30, Hasegawa et al. disclose the columnar spacers are formed at a sealing region 32 and a region between a driver circuit and a pixel portion 22 (fig. 3b and 3g).

With regard to claims 9 and 31, Hasegawa et al. disclose the columnar spacers are formed at a region between a driver circuit and a pixel portion and at the pixel portion (fig. 3b and 3g).

With regard to claims 10 and 32, Hasegawa et al. disclose the columnar spacers are formed at a region between a sealing region 32 and a pixel portion 22 (fig. 3g).

With regard to claims 11 and 33, Hasegawa et al. disclose the columnar spacers are formed at a region between a sealing region 32 and a driver circuit (fig. 3b and 3g).

With regard to claims 15 and 37, Hasegawa et al. disclose the semiconductor device is an active matrix type liquid crystal display device (col. 1, lines 8-10).

With regard to claims 17 and 39, Hasegawa et al. disclose the columnar spacers has a height of 5 μm (col. 20, line 49).

With regard to claims 18 and 40, Hasegawa et al. disclose the columnar spacers has a width of 11 μm (col. 20 line 50).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wai-Sing Louie whose telephone number is (571) 272-1709. The examiner can normally be reached on 7:30 AM to 4:00 PM.

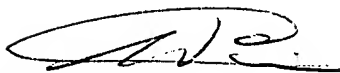
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2814

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wsl

April 21, 2005.

A handwritten signature in black ink, appearing to be 'Wsl', written over the typed name 'Wsl'.